

## SCIENCE AND INVENTION.

## Work of the World's Busy Brains in Discovering, Inventing and Creating.

## ABALONES.

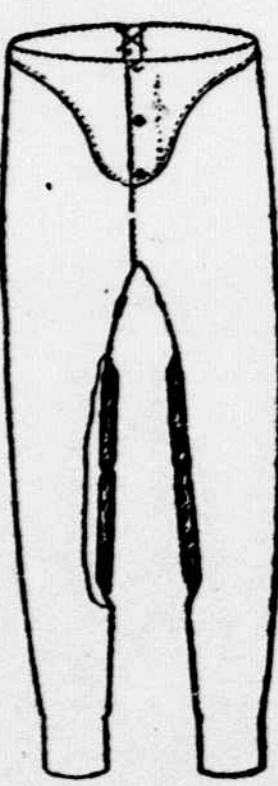
A new and quite important industry has developed on the Pacific Coast in the gathering of abalones. The word has four syllables, with the accent on the third. The abalone is a gigantic sea snail, whose natural home is the deep water off a rocky coast, and this is the description of the coast of central and lower California from Cape Mendocino to Capt. St. Lucas. The supply of the shell-fish seems limitless, for as fast as one part of the ground is worked over it is refilled by fullgrown shell-fish coming in from the ocean. Within three months after thoroughly clearing off the ground it is as thickly covered as ever. A large-sized abalone weighs as much as two pounds of good, wholesome, easily-assimilated food. The Chinese and Japanese are very fond of the fish, but have only a limited coast upon which they will grow. Therefore, there has a great business grown up in diving to the bottom of the sea in searching for them. The custom has been to lay these fish out in the sunshine to dry, which reduced them to about one-third and made a dry, tough, horny product which had to be ground into powder before it could be used for making soup and other food. The Japanese improved somewhat upon this process by treating the abalone as we do clams and oysters when they are canned. Some time ago the attention of the Americans was drawn to the abalone matter and the endless quantities to be had in California, and straightway the active American mind began devising ways of putting the product into the market in the best shape. A process was at last developed by which the flesh of the abalone is rendered as soft and succulent as that of the oyster, and as a result a great company has been incorporated and built a large cannery at Cayucos, in San Luis Obispo County. The work is done in a large number of boats, each of which carries two Japanese divers. One of these goes down for three or four hours and then is relieved by the other. In the treatment of the abalone at the factory every part is made profitable. The flesh and juice are prepared as oysters and can be used in as many different ways. The viscera are used for glue and the shells furnish mother-of-pearl for the button trade. These shells are sent to the East and to Europe and bring from \$35 to \$135 per ton. Much of the canned product goes to China and Japan, but the Pacific Coast people are coming into the habit of eating abalones and all the leading hotels and restaurants in San Francisco have abalone dishes on their regular bill-of-fare.

A most important discovery has been made in the use of epsom salts as an anesthetic. The discovery was made by Dr. S. J. Meltzer and Dr. John Auer, of New York, who have been making a long series of tests at the Rockefeller Research Laboratory. These tests have been confirmed by surgeons at the various hospitals. It is used as a solution injected into the veins of the patient, and the action is very rapid. Respiration is checked, and a general paralysis of the whole body ensues. If the injection be subcutaneous the influence is more gradual, but complete unconsciousness results. If the solution be applied only to a particular trunk nerve, its influence is limited to the limb or other locality to which the nerve normally ministers. Finally, if "lumbar puncture" be resorted to, only that portion of the body below the waist is affected—that is to say, the abdominal region and the legs—while the upper part of the body retains its sensibility and the mind its faculties. Lumbar puncture is piercing the spinal cavity near the lumbar vertebrae (in the small of the back). The full effect is not produced for about three hours after it should be added that a severe case of tetanus was cured in 36 hours by this treatment. Recovery from the influence of the drug can be hastened by injecting a solution of common salt.

A wonderful deposit of copper is now being worked in the Grand Canyon of the Colorado. The mine is in a formation more than 1,000 feet below the rim of the canyon and is so great that the width of the vein is at places 500 feet. So far the ore is gotten out entirely by hand labor under much difficulty, and the ore has to be carried up to the rim of the canyon upon the backs of burros, which also carry it to the railway, 14 miles away, where it is hauled 615 miles farther to the smelter at El Paso. The company expects to use the waterpower to operate an electrical tramway and a teler system; that is, buckets running along upon a wire from the mouth of the mine to the rim of the canyon. The difficulty about this plan is that when the floods come such a volume of water tears down through the canyon that it is doubtful if any dam could be built to withstand the force.

## "Limb Appliance."

Arthur M. Valentine, Janesville, Wis., comes to the relief of crooked-legged men with a pad for drawers which will



smooth over and fill out their deficiencies in limb and give them the legs of an Apollo. He has obtained a patent for a pair of drawers having the necessary pads to give shapeliness to the legs.

## CHICAGO'S UNDERGROUND RAILWAY.

## A Wonderful System for Relieving Street Congestion.

Enterprising Chicago has astonished the world by a system of underground communication, which relieves the terrible congestion of heavy trucks which is found in the business portions of other great cities. In the course of several years there has been constructed under the principal streets 33 miles of tunnels six feet wide by seven feet six inches high, in which are railroads that carry the heavy merchandise, coal, building material, refuse, dirt from excavations, debris of torn-down buildings, etc., etc. This system has been arranged for the greatest convenience of the merchants and manufacturers.

## A LOADED CAR IN THE CHICAGO TUNNEL.

having branch lines which run directly into the basements of their buildings, to bring in goods, raw material, etc., and take out that intended for shipment. These facilities enable the business houses to build downward as well as upward, and basements are being constructed on several streets deep. The cars are taken from the railroads in these by specially designed elevators, which will carry as much as 30,000 pounds. It may be stated that the business district of Chicago comprises about one and a half square miles of territory and is completely surrounded by the passenger stations and freight depots of the 25 trunk lines which make Chicago the greatest railroad center in the world. It is estimated that the freight handled daily at the freight depots in Chicago amounts to more than 12,000 tons, and with the present facilities afforded by the tunnel will relieve the congestion and facilitate the transaction of business in the business section, removing about 80 percent of the heavy teaming from off the streets. This underground electric railway system consists of a subway and track system, the tunnel as built being egg-shaped with walls of concrete. The walls are 10 inches thick with 14 inches bottom. They are six feet wide and seven feet six inches high, inside measurement, and are at an average depth of 40 feet below grade.

## Advantages of Concrete.

The concrete tunnel is said to have a great advantage over a brick one, as there is no chance for settling of the bricks. In using brick it is impossible to dig a tunnel so true that the brick will fit snug, consequently they are obliged to back fill with clay, slabs or other material, that is, the tunnel leaves voids, which are bound to cause settlement. In the use of concrete it is necessary to tamp the concrete tight to get a perfect bond, and in so doing it fills up every void no matter how uneven, making it an impossibility for any chance of a settlement. It is with just pride that the management can say that from the time the work was started, up to the present date, the company has not received one complaint of any damage having been done to the streets of Chicago or adjoining property.

## The Track.

The permanent track has a gauge of two feet, and the Illinois Steel Company 44-inch 56-pound rail was adopted as the standard rail. The rail is fastened by U-bolts to a specially designed cast-iron chair embedded in the concrete floor of the tunnel. The great number of crossings and switch-alterations necessary in the building can be made. The first railroad to make provisions to use the subway was the Lake Shore & Michigan Southern, in their new freight house at Clark and Taylor streets.

The cars are 12 feet six inches in length over all and 47 inches in width. They are of steel and iron construction throughout, and can be used either as a gondola or a flat car, and every car is equipped with a M. C. B. coupler. The weight capacity of the car is 30,000 pounds. The double tracks are so built that the cars readily operate upon a curve of 15-foot radius.

The tunnel is well lighted throughout by electricity. The current for light and power is supplied at present by the Chicago Edison Company. Power for trains is furnished by a 5,000-horse-power generating plant. Direct current at 250 volts, the rails furnishing the return, is the system in use.

The Northwestern University has deeded a tract of land on the Chicago River at Twenty-fourth to the Tunnel Company, where it erects its own power house. The company also erects large warehouses where it will be possible for merchants who have only a limited amount of space to store a large supply of goods drawing upon the same as needed. These warehouses the company erects on its own property on the west bank of the river at Taylor street.

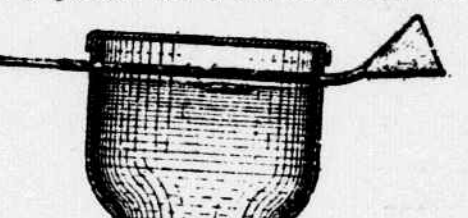
At each street intersection of the tunnel there is an automatic telephone, and all trains are operated by this system. The cables for the telephone system are hung from the roof of the tunnel with a specially designed adjustable strap. Guards are stationed at street intersections and every precaution is taken to avoid accidents. The many connections already made with the tunnel insures thorough ventilation. The floor of the tunnel is dry and as smooth as the average cement pavement.

## Work of the Patent Office.

For the week ended Dec. 12, the Patent Office issued 666 patents, 15 designs, 109 trade-marks, 14 labels, five prints and eight releases, making a total of 817, of which 601 patents and 127 trade-marks went to citizens of the United States and 80 patents and one trade-mark to citizens of foreign countries.

## Soap Bubble Generator.

Charles J. Paulson, New York, N. Y., comes to the assistance of children with a patent for a device which will



blow soap bubbles continuously. It is a cup with a pipe permanently fixed in it. When the soap suds are put in the cup bubbles can be blown without intermission.

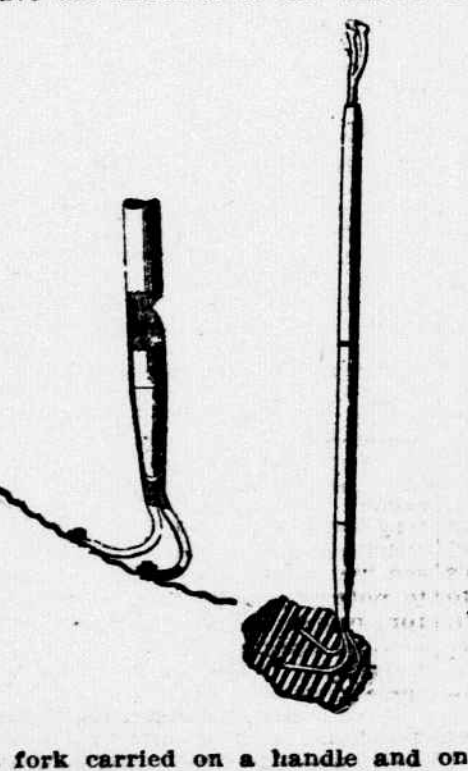
## Clothes Washer.

Though the wash-tub is a great deal in evidence in almost every woman's



## A LOADED CAR IN THE CHICAGO TUNNEL.

life it has been neglected almost altogether by female inventors. Emma M. Whittemore, Troy, N. H., seems to be the first who has turned her attention to this indispensable household appliance and her idea is a unique one to save the knuckles of the washer.

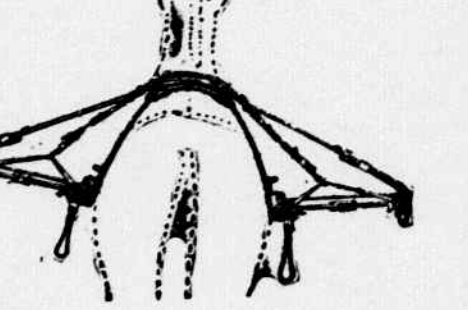


## A Station to Cover Nearly All of Europe.

Consul Diederich, of Bremen, writes: "The general Post Office Department of the German Imperial Government is now building a wireless telegraph station of monstrous height at Norddeich, which probably will be for the time being the most efficient in the world. It is expected to cover a circuit of not less than 932 miles. This station will copy not only messages to and from Germany, Switzerland, France, Great Britain and Denmark, but also the larger part of Italy, Sweden and Norway, and even portions of Spain, on the north coast of the Baltic Sea. The southeast it will operate as far as Saragossa; in the south it will almost reach Naples and Cetinje, in the east get close to St. Petersburg, and in the north it will be within the grasp of Drontheim and about half way to Narvik. German vessels homeward bound from America will be able to communicate with the German coast at Norddeich when they are still on the Atlantic far beyond Land's End, 12 degrees west of Greenwich. The installation at the station will be set up by a Berlin firm supplying the machinery, apparatus and accessories for wireless telegraphy, according to the system called 'telefunken'."

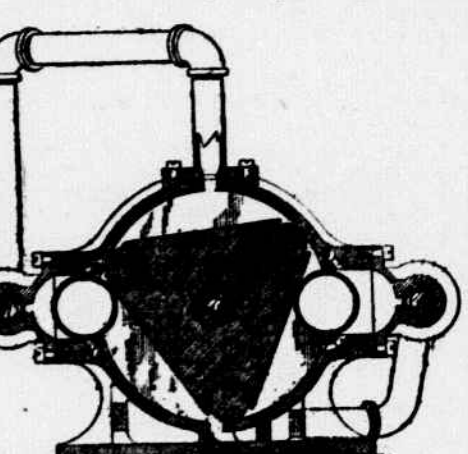
## Litter Frame for Pack Saddles.

Henry W. Daly, Leavenworth, Kan., has received a patent for a litter frame for pack saddles which consists of a joining property.



## Rotary Engine.

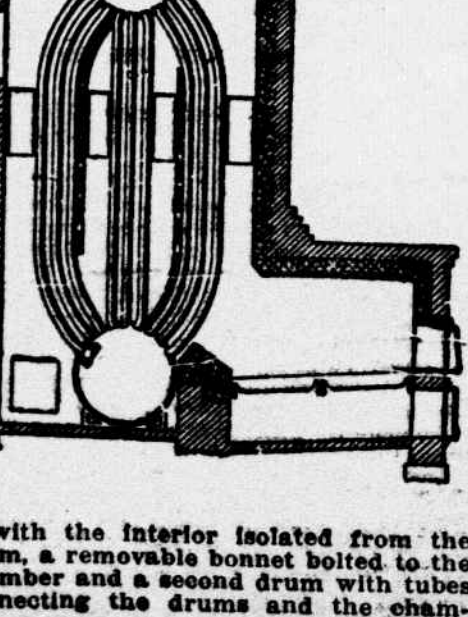
Adam S. Dickson, Woodbury, N. J., has added to the innumerable list of inventions of rotary engines one that



has a number of novel features. The revolving portion is triangular and at each corner has rollers which revolve against other rollers that open and close the steam and exhaust ports.

## Boiler.

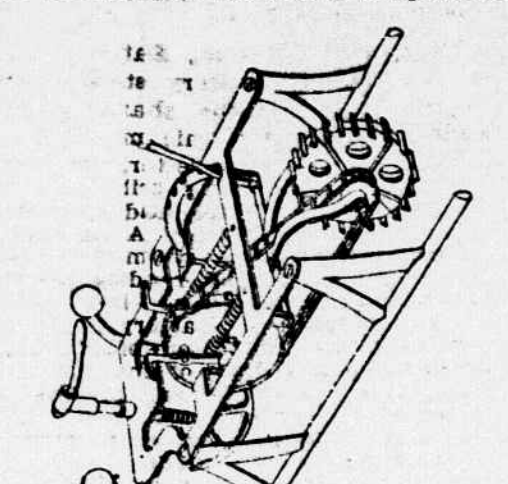
John Milne, Brooklyn, N. Y., has patented a boiler which is a combination of a drum, a chamber connected with



it with the interior isolated from the drum, a removable basket bolted to the chamber and a second drum with tubes connecting the drums and the chamber.

## Sled.

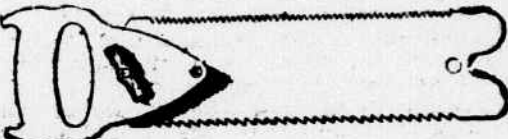
Lincoln H. Kelley, Ottumwa, Iowa, has patented a sled in which the bicycle principle of treadles and sprocket-



wheel are made to operate a motor-wheel running on the ground.

## Combined Cresscut and Rip Saw.

Frederick A. Wuest, Lawrenceburg, Ind., has obtained a patent for a com-



bined cresscut and rip saw which is a double ender as well as a double sider and is used one way to cut and the other way to rip.

## WEATHER GLASSES.

## An Easy Way of Making an Infallible Storm Indicator.

Here is a method of making old-fashioned weather glasses containing a liquid that clouds or solidifies under certain atmospheric conditions:

Camphor ..... 2 1/2 drachms  
Alcohol ..... 11 drachms  
Water ..... 9 drachms  
Saltpetre ..... 18 grains  
Sal ammoniac ..... 38 grains

Dissolve the camphor in the alcohol and the salts in the water and mix the solutions together. Pour in test tubes or slender clear bottles, cover with wax after corking and make a hole through the cork with a cork borer, or draw out the tube until only a pin hole remains. When the camphor, etc., appears soft and powdery, and almost perfectly clear. Coming rain, south or southwest winds may be expected; when crystalline, north, northeast or northwest winds, with fine weather, may be expected; when a portion crystallizes on one side of the tube, wind may be expected from that direction. Fine weather: The substance remains entirely at bottom of tube and the liquid perfectly clear. Coming rain: Substances will rise gradually, liquid will be very clear, with a small star in motion. A coming storm or very high wind: Substance partly at top of tube, and be of leafy form, liquid very heavy and in a fermenting state. These effects are noticeable twenty-four hours before the change sets in. In winter, generally the substance lies higher in the tube. Snow or white frost: Substance very white and small stars in motion. Summer weather: The substance will be quite low. The substance will lie closer to the tube on the opposite side to the quarter from which the storm is coming.

## BIG-WIRELESS PLANT.

## A Station to Cover Nearly All of Europe.

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"At first it was proposed to erect the gigantic telegraph station on the island of Borkum, but finally Norddeich at Norden was chosen as the northernmost corner of the German Empire. Norddeich is also the terminus of the Prussian Railway system in the extreme northwest, and a small seaport for the Frisian Islands. The towers for the station will be 212.25 feet high. The foundations have already been laid and the work of erecting the iron superstructure will soon begin. I am informed that the site is a very fine one, and that the work will be completed during the month of November, and that by the beginning of a new year this latest and largest telegraph station will be ready for performing its work."

## WHAT WATER CAN DO.

## Some Wonders of the Western Power Plants.

## (The World Today.)

Imagine a perpendicular column of water more than one-third of a mile high, 26 inches in diameter at the top and 24 inches in diameter at the bottom. Those remarkable conditions are complied with, as far as power goes, in the Mill Creek plant, which operates under a head of 1,950 feet. The water supply is the Mill Creek, liberated, would be just about enough to make a small trout stream, gives a capacity of 5,200 horse-power, or enough to power a 100-mile-a-hour ocean-going vessel. As the water strikes the buckets of the water-wheel, it has a pressure of 850 pounds to the square inch. What this pressure implies is evidenced by the fact that the average locomotive carries steam at a pressure of 190 to 200 pounds to the square inch. Were this steam, as it issues from the nozzle, directed upon a hillside, the earth would fade away before it like snow before a jet of steam. Huge boulders, big as city edifices, would tumble into ravines with as little effort as a clover leaf carried before the hydrant stream on a front lawn. Brick walls would crackle like paper, and the hugest skyscrapers crumble before the force of the water. The Mill Creek plant. It takes a powerful waterwheel to withstand the tremendous pressure. At Butte Creek, Cal., the water is 212.25 feet high in diameter, issues from the nozzle at the tremendous velocity of 20,000 feet a minute. It impinges on the buckets of what is said to be the most powerful single water wheel ever built, causing the latter to travel at the rate of 84 miles an hour, making 400 revolutions a minute. This six-foot stream has a capacity of 12,000 horse-power. The water from the nozzle is conveyed from Butte Creek through a ditch and discharged into a regulating reservoir which is 1,500 feet above the power house. Two steel pressure pipes, 30 inches in diameter, conduct the water to the power-house.

## Disease-Carrying Insects.

The investigations of Dutton and Todd on tick fever in the Congo Free State have gone to prove that this disease is transmitted by a tick (Ornithodoros savignyi) after it has infected itself with blood containing the Spirochaeta. This has been confirmed by Koch, if we may rely on what has appeared recently in German newspapers. It is, however, quite premature to assume that African tick fever and European relapsing fever are due to one and the same species of Spirochaeta; in fact it is highly probable that this is not the case, although the report in question refers to the Spirochaeta as one species. In relapsing fever in Europe the bedbug (Cimex) has long been suspected to be a carrier of the infective agent, a probability which was considerably heightened by Karinski's observation of motile Spirochaetae in the bodies of the insects up to 30 days after they had fed on relapsing fever blood. Schaudinn, moreover, informs us that he has observed the multiplication of the Spirochaetae in the bodies of the insects. These observations, following closely upon those published by Marchoux and Salimbeni, are of greatest interest and practical import. The last-named authors demonstrated that a fatal disease of the fowl in Brazil is due to a Spirochaeta which is transmitted through the agency of the tick (Argas miniatus), and this is capable of conveying the disease even six months after feeding on infected blood. These Spirochaetae multiply in the tick, and are present in large quantities in its body cavity throughout this period. These observations are very suggestive, since they demonstrate the long persistence of the parasites in their carriers, and render it probable that they will be found to be harbored much longer. Finally, the finding this year of Spirochaeta pallida in gophers by Schaudinn and others in man, and by Metschnikoff and Roux in experimentally infected apes, cannot escape a passing notice.

## A Few Figures.

The marvels detailed in a recent Government Census report puts Aladdin's luminary in the shade. In the census taken there were 2,620 central electric stations, representing \$500,000,000; 30,000 officers and laborers, whose wages amounted to \$20,000,000; 125,000 miles of wire had been laid; 419,000 arc lamps; 18,000,000 incandescent lamps were in service; the stations had an output of 3,500,000,000 horse-power hours, the cost of electricity being approximately equivalent to the cost of coal. The work possible were every man in the country to spend a day turning a crank.

## SCIENTIFIC NOTES.

A splendid illustration of the increased value of manufactured iron and the raw material is found in the Berlin factory, where they make cast-iron ornaments. The fineness and delicacy of these separate ornaments is so great that 10,000 of them go to the pound. The cost of the material is \$60,000, while the raw material of which they are made costs about \$7.50.

Early in the 17th century Dudley accomplished the desirable result of smelting iron ore in a blast furnace with him and was not again established for 100 years.

In the time of Edward III. iron was so rare that the pots, spits and frying pans were classed among his majesty's jewels.

It is said it will require 1,500,000 freight cars, or a train 12,286 miles long, to haul the grain crop to market this year.

Dr. Isadore Dyer, of New Orleans, who has been studying the case of leprosy, has announced that the second leper whom he has completely cured has been discharged from the Lepers' Home. The patient discharged last was a woman, whose name is withheld. The other patient was a boy, in whom the disease had just developed. Other patients undergoing Dr. Dyer's treatment are said to be improving.

Many observations have convinced Mabel S. Nelson, a British psychologist, that men hear better than women, and that both men and women hear farther with the right than the left ear. Men

are clearly superior in recognizing blue, and women are possibly superior in recognizing yellow.

The effect of ultra-violet rays of light on some kinds of glass is strikingly shown at high altitudes. At a mountain station of the Canadian Pacific Railway—5,000 or 6,000 feet above green glass telephone insulators have changed to brilliant purple.

L. Guillet shows that aluminum dissolves in iron to a maximum extent of 15 per cent. As long as the admixture of aluminum remains below two per cent it exerts no effect upon the mechanical properties of the iron. At seven per cent it becomes extremely brittle.

## A Japanese Memorial Day.

The Japanese papers contain an account of the Shinto services in honor of the dead in the recent war. The ceremonies which took place in the city of Tokyo consisted of the placing of tablets and funeral meats before a shrine. Admiral Togo made a remarkably eloquent address to the spirits of the departed heroes. It is as follows:

"The clouds of war have disappeared from sea and from shore, and the whole city, with a peaceful, placid heart like that of a child, goes out to meet the men who shared life and death with you, and who now return triumphant under the Imperial standard, while their families wait for them at the gates of their homes. 'Looking back, we recall how, bearing the bitter cold and enduring the fierce heat, you fought again and again with our strong foe, and while the issue of the contest was still uncertain you went before us to the grave, leaving us to envy the glory you had won by your loyal deaths. I am proud to imitate you in paying the debt to sovereign and country. Your valiant and vehement fighting always achieved success. In no combat did you fail to achieve what you set your hearts upon. Through your efforts the attack on Port Arthur continued and the result was determined. In the Sea of Japan a single annihilating effort decided the issue of the war. The enemy's shadow disappeared from the face of the ocean. This success had its origin in the infinite virtues of the Emperor, but it could not have been achieved had not you, forgetting yourselves, sacrificed your lives in the public service. The war is over. We who return in triumph see signs of joy everywhere. Let us remember that we cannot share it with you, and mingled feelings of sadness and rejoicing struggle painfully for expression. The triumph of today is approximately equivalent to the triumph of yesterday. Your glorious deaths, and your loyalty and valor will inspire our navy, guarding the Imperial land for all time. 'We here perform this rite of worship to your spirits, speaking something of our sad thoughts, pray you to come and receive the offerings we make.'"

## Forest Fires.

Certain as it is that fire is the greatest of forest evils, there exists comparatively little accurate knowledge on which to base an estimate of the total loss from this source. This is due not to lack of interest so much as to the immensity of the field and the complex character of the problem which the task to make such an estimate presents.

Chimney, lumber, cordwood, merchantable standing timber, and other property of stable market value can be closely estimated by inventory losses, but when attempts are made to combine even these definite losses for a State, or for the United States, the result becomes a rough estimate, if not a matter of mere conjecture. Nevertheless, it is indisputable that these losses are enormous, and that, for the country as a whole, they run high into the millions. The most conservative estimates of the average annual loss from forest fires at above \$25,000,000. More exact estimates are available for limited regions. For example, a careful estimate made on the ground after the terrible Washington and Oregon fires of 1902 showed a loss in nine days of \$12,000,000 worth of forest property. New York State, in the Spring of 1903, suffered from unusually severe fires in the Adirondacks, involving a direct loss estimated at \$3,500,000, in addition to a known expense for fire fighting of \$175,000.

## Cows and Women.

## (Boston Transcript.)

If it ever does come to pass that buffaloes become the farmer's next friends and do his hauling and drawing in a more intelligent and satisfactory way than oxen ever did, it will be interesting to know how the women folk take the change. Not only the farmers' wives and daughters, but the Summer boarders within its gates. Even now many of these ladies cannot be hired to trek through a pasture where the mildest old cow that ever lived lies under a tree half asleep chewing her cud. For there has always been a feud between women and cows; no one knows where it started or which was the first offender. As the saying is, there is no love lost between them. Of course, there are exceptions on both sides. Some cows, it is perfectly plain, have no prejudices against the sex, even at milking time, and a few women will pick their way fearlessly through a drove of cattle. But the ordinary woman, especially the one who spends but a few weeks in the country each year, is puzzled, the woeless persuade all her friends, that a cow is an awful beast of prey, and she wouldn't trust herself in a five-acre lot with the best-trained and gentlest specimen that ever lived.

## The 5th Mass.

Editor National Tribune: Please give a history of the 5th Mass., and oblige.—D. B. Whitcomb, Clinton, Mass.

The 5th Mass. was a militia regiment, which reported for duty upon the firing on Fort Sumter, and reached Washington April 26. Its Colonel was Samuel C. Lawrence, of Concord. It took part in the battle of Bull Run where it lost nine killed, including the Color Sergeant; two wounded, one of whom was Col. Lawrence, and 23 prisoners. It was mustered out July 29, and Aug. 14, 1862, was reorganized for the nine months' service, with George H. Peirson, of Salem, as Colonel. It served in North Carolina and its term and was mustered out July 1863. In July, 1864, it was reorganized for the 100 days' service, under Col. George H. Peirson, and was in garrison at Baltimore until its return to Boston in November.—Editor National Tribune.

## Army and Navy News.

Terrence McDonald, Garrison, 28, and John P. Balch, Garrison, 49, will hold joint installation of officers at the Garrison Hall in Newburyport, Mass. The installation will be followed by a military ball. Col. E. W. M. Bailey will be guest of honor that evening.

## LOCOMOTOR ATAXIA

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## Duty of Married Soldiers.

It does not follow as a matter of course, if a man was a soldier, even if he is a pensioner, that it will be an easy matter for his widow to get a pension. As a matter of fact, widows are classed as a class, and in some cases never allowed for lack of evidence, which the husband, usually, could have supplied during his lifetime.

This important matter has been discussed, from time to time, in the columns of The National Tribune, and has been made the subject of orders by Commanders-in-Chief of the Grand Army, but every appeal heretofore was deficient in one essential particular, no safe and permanent place was suggested for the custody of the papers.

The National Tribune Co., in a practical way, proposes to supply this deficiency. In a fire-proof room, in its own building and under lock and key to insure privacy, it will be made a safe and permanent place for the custody of the papers. No safer place in the world can be found for the purpose.

But The National Tribune will go further in this commendable work. It will assist in getting in shape the proofs and information required. The first step for every comrade is to answer the questions asked in the "Preliminary Report." This report will disclose the case and enable The National Tribune to complete all the proof required.

There will be no charge whatever for this service, but it will be expected of every comrade that he will call the attention of other married comrades to this matter and influence them to do likewise. No other missionary work among comrades can be productive of more good. Many comrades who are not subscribers to The National Tribune will not learn of this important service if solicitors do not call their attention to it. Extra blanks will be sent for distribution upon request.

All comrades are requested to make the Preliminary Report, including those who have married since June 27, 1890.

Comrades who attend to this matter promptly will be taking the best possible step toward securing for their widows the higher rate of pension.

## Preliminary Report

To aid my widow, if I leave one, in getting her pension.

Note.—This report is short, and can be easily written out on letter or legal cap paper. This course avoids cutting the paper. Be sure to write the names and dates clearly and distinctly. When report is ready mail it to THE NATIONAL TRIBUNE, Washington, D. C.

Date....., 1905.

(Write above number and street, or R. F. D. No., if any.)

Soldier's Name..... Present P. O.....

State..... I was in the service from..... day of....., 186..... to..... day of....., 186..... as a..... (Give rank, also company and regiment.)

and was honorably discharged at..... on the..... day of....., 186..... Are you a pensioner?..... At what rate? \$..... per month (Yes or no.)

Were you pensioned under the old law or the new?..... (The new law is the act of June 27, 1890.)

What wounds, diseases or disabilities, if any, are written on your pension certificate?.....

I was married to..... on the..... day of....., 18..... (Give wife's name before marriage.)

by..... at..... (Give name of clergyman or person officiating.)

was born..... day of....., 18..... She was born..... day of....., 18.....

Is there a court or church record of this marriage?.....

Were either of you previously married?.....

If a prisoner of war, state for how long.....

Remarks:.....